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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,647

06/20/2006

Peter Dirksen

NL040617US1

8794

24737

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05/25/2010

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

CHEA, THORL

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

05/25/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,647	Applicant(s) DIRKSEN ET AL.	
	Examiner Thorl Chea	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/18/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is responsive to the response the communication on February 12, 2010; claims 1-13 are pending and considered in this office action; claims 14-19 have been canceled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chang et al (US 2005/0123863A1).

Fig.1A contains a material layer (102), a photoresist material (106), and a protective layer (108). The protective layer (108) is capable of preventing out-diffusion of the chemicals in the photoresist layer (106) into the immersion liquid and diffusion of the immersion liquid into the photoresist layer. Fig.1C shows a solubilization step which performed to alter the property of the protective layer (108) so that the corresponding portion of the protective layer (108) are soluble in the development liquid. The solubilization step may included a baking step that make the acid

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produced in the exposed portions (106a) of the photoresist to diffuse into the protective layer (108). See page 2n [0020] to [0030].

Chang may not disclose whether the protective layer is transparent layer, but light can pass through the layer to expose the photoresist layer. Therefore, it asserted that the protective layer taught in Chang et al is transparent to light exposure. In the absence of showing in contrary, it is asserted that the claimed invention is either anticipated or would have been found prima facie obvious to the worker of ordinary skill in the art at the time the invention was made.

5. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Yeo et al (US 2005/0036184A1) and Piao (6,555,234) .

Yeo et al discloses immersion lithographic system for irradiating a photosensitive on a substrate wherein the photosensitive and the substrate is immersed in a fluid. See apparatus in Fig.1 which contains equipped with light source (20), lens 922), mask (30), imaging module (40), immersion fluid (60), photosensitive (70), substrate (80); Fig.6 wherein a barrier layer is provided on the photosensitive material (70). Page 4, [0053] discloses that the barrier layer (90) may be a separate layer of the material that is substantially impervious or impermeable to the immersion fluid (60). For example, in the case where the immersion fluid (60) is water, the barrier layer has a hydrophobic surface that prevents excessive diffusion of water onto the barrier layer and the photosensitive layer. See also the processing step in Fig.8.

Piao discloses a barrier layer provided over a photoresist film to prevent outgassing. The barrier layer can be relatively highly transmissive to radiation at the actinic wavelength . The barrier layer can be removed before the photoresist layer is developed. See abstract. Column 5, lines 64-68 disclosed that the barrier (17) is stripped in a wet etching process. If the barrier layer

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(17) is thin enough, barrier (17) can be removed in a chemical mechanical polishing. It would have been obvious to the worker of ordinary skill in the art at the time the invention was made to use the photosensitive with a transmissive barrier taught in Piao in combination with the immersion exposure apparatus taught in Yeo et al to form a pattern on a semiconductor structure, and thereby provide a process as claimed. The term “transmissive” used in Piao has same meaning as "transparent" present in the claimed invention since light exposure can pass through the layer to expose the photosensitive material.

Conclusion

6. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on March 18, 2010 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thorl Chea whose telephone number is (571) 272-1328. The examiner can normally be reached on 9 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571)272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TC/
May 17, 2010

/Thorl Chea/
Primary Examiner, Art Unit 1795